

**PUBLISHED**

**UNITED STATES COURT OF APPEALS**

**FOR THE FOURTH CIRCUIT**

JAMES L. OGLESBY,

Plaintiff-Appellant.

v.

No. 98-1716

GENERAL MOTORS CORPORATION,

Defendant-Appellee.

JAMES L. OGLESBY,

Plaintiff-Appellee.

v.

No. 98-1818

GENERAL MOTORS CORPORATION,

Defendant-Appellant.

Appeals from the United States District Court  
for the District of South Carolina, at Charleston.  
Falcon B. Hawkins, Senior District Judge.  
(CA-97-403-2-11)

Argued: April 8, 1999

Decided: August 31, 1999

Before WILKINSON, Chief Judge, and NIEMEYER  
and MICHAEL, Circuit Judges.

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Affirmed by published opinion. Judge Niemeyer wrote the opinion,  
in which Chief Judge Wilkinson and Judge Michael joined.

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## COUNSEL

**ARGUED:** Jill Waldman, GIBBS & HOLMES, Charleston, South Carolina, for Appellant. W. Randall Bassett, KING & SPALDING, Atlanta, Georgia, for Appellee. **ON BRIEF:** Allan R. Holmes, GIBBS & HOLMES, Charleston, South Carolina, for Appellant. Chilton Davis Varner, KING & SPALDING, Atlanta, Georgia; Wm. Howell Morrison, HOLMES & THOMSON, L.L.P., Charleston, South Carolina, for Appellee.

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## OPINION

NIEMEYER, Circuit Judge:

While James Oglesby was leaning into the engine compartment of a seven-year old Chevrolet Silverado pickup truck to adjust a transmission cable, a radiator hose detached, causing Oglesby serious burn injuries. Contending that his injuries were caused by a defective plastic hose connector between the radiator and the radiator hose, Oglesby filed this product liability action against General Motors Corporation, the manufacturer of the truck, alleging negligence, breach of warranty, and strict liability under South Carolina law.

On General Motors' motion, the district court entered summary judgment in General Motors' favor, rejecting under Federal Rule of Evidence 702 the opinion of Oglesby's expert witness, a mechanical engineer, but ruling that the principles of Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579 (1993), did not govern the admissibility of that testimony. The district court also concluded that Oglesby failed to prove that the part was defective when it left General Motors' manufacturing plant and that General Motors breached its duty of care in manufacturing the product.

For the reasons that follow, we affirm.

I

In or around 1991, Blaine Nielson purchased a used 1988 Chevrolet Silverado pickup truck. Within the first years after purchasing the

truck, Nielson had to overhaul the truck's engine and rebuild its transmission. At the same time, he removed the radiator, cleaned and flushed it, and replaced the radiator's hoses.

Several years later, in June 1995 when the truck had about 156,000 miles on it, the rods began "knocking," and the engine began to overheat. Nielson and his friend, James Oglesby, who was a certified mechanic, completely rebuilt the engine. During this repair, not only did they replace the thermostat in the radiator, but they also removed and cleaned the radiator, replacing one of its hose clamps.

Within two weeks of this repair, the transmission began to shift "too slowly," and Nielson took the truck to Oglesby's place of work to have Oglesby adjust the transmission "detent cable," which causes the transmission to change gears. To reach the detent cable, Oglesby stepped on the driver's side front bumper, leaned into the engine compartment, and reached down toward the engine's firewall where the cable was located. Oglesby's body was positioned on the driver's side of the truck facing the windshield with his backside facing the radiator. As Nielson described it, Oglesby "was kneeling up inside, reaching to adjust the linkage. He is short, so instead of reaching over the fender -- like I'm taller, but I don't know how to do it, so Jim was doing that for me. But he got up inside and was leaning up over the carburetor and stuff." As Oglesby leaned down to adjust the cable, Nielson stated that he heard "a big `w[h]oosh' sound" and he heard Oglesby yell. The radiator hose had detached and sprayed hot coolant on Oglesby, severely burning his torso from the waist down and his legs. Oglesby thereafter received extended hospital care to treat his burns.

Following the incident, Nielson reattached the radiator hose and continued driving the truck. Two months later, in September 1995, Nielson and Oglesby's attorney inspected the radiator and discovered a broken piece of the plastic inlet connector inside the radiator hose. The inlet connector is a lipped pipe-type piece that serves as the connection device between the radiator hose and the radiator.

Oglesby filed suit against General Motors, the manufacturer of the truck, in state court in Charleston, South Carolina, alleging liability based on negligence, breach of warranty, and strict liability. General

Motors removed the case to federal court, based on diversity of citizenship, and filed a motion for summary judgment, contending that the hose connector was not defective when it left control of General Motors, that it had breached no duty of reasonable care, and that plaintiff's expert testimony was inadmissible under both Daubert and Federal Rule of Evidence 702.<sup>1</sup> In answer to General Motors' motion and in support of his claims, Oglesby presented the opinion of Douglas Bradbury, a former professor of mechanical engineering at Clemson University. Bradbury had previously consulted in an array of cases involving the mechanical design and safety of various industrial products, but he had no particularized experience or expertise in evaluating either automobile manufacturing processes or the strength of plastic automobile component parts.

In preparing to render his expert opinion, Bradbury looked at the broken plastic connector and the piece which broke off, took physical measurements of the connector, and photographed the parts. These three steps constituted the entirety of Bradbury's investigation into the part or its manufacture. He found that "the connector [was] not circular, but [was] a flattened oval in shape," noting that the difference between "the major and minor dimensions of the oval shape [was] 1/10 inch." Bradbury did not know nor learn how the part was manufactured or from what material it was manufactured. He did not know nor learn any specifications prescribed for the part, and he did not perform any tests or calculations to determine the strength of the part or the stresses to which it was subjected. From his observation and measurement, Bradbury concluded:

The out-of-roundness of the upper (inlet) hose connector was apparently a manufacturing defect. Certainly, there would be no reason to design it as an oval shape, considering the method of clamping. Two probable causes of the

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<sup>1</sup> Federal Rule of Evidence 702, entitled "Testimony by Experts," provides:

If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise.

out-of-roundness are recognized. One is that the upper connector was manufactured out-of-round. This is most unlikely, considering that the mold was designed to produce round, circular connectors. Also, the out-of-roundness should have been seen during the routine on-line inspection.

It is most likely that a defect in the formulation or handling of the thermo-setting plastic caused time-dependent internal stresses which deformed the connector from round to oval, ultimately resulting in the loosening of the upper hose and the scalding of James Oglesby.

After Bradbury gave his opinion, a General Motors expert testified that the part was "not a thermosetting plastic," but a "nylon composite, glass filled," that had "thermoplastic" characteristics including the "ability to be remolten." Bradbury then submitted a supplemental affidavit stating, "I incorrectly stated that the inlet connector was made of thermosetting plastic when it was really made of a glass thermoplastic nylon composite." Nonetheless, he concluded, still without possessing the specific properties of the material, that the "error does not in any way alter my opinion as to the defect."

General Motors' expert concluded that the "hose separation was . . . due to large bending loads applied to the hose connection" from "Mr. Oglesby leaning or pressing his torso against the radiator hose." General Motors also determined that Oglesby was the only individual, past or present, to file a complaint alleging a defect in the inlet connector installed in any of the 2,505,491 series C/K trucks, which included the 1988 Silverado model, that it manufactured between 1987 and 1991.

In granting General Motors' summary judgment motion on strict liability and breach of warranty, the district court applied South Carolina product liability law and concluded that Oglesby "failed to produce competent evidence that the truck was in the same condition as when it left the defendant's possession," explaining that the truck's "age, mileage, and prior repairs exceed the reasonable limits of establishing the fundamental element that the product was in the same condition at the time of the accident as when it left the defendant's possession." On the negligence claim, the court ruled that "[p]laintiff

has shown this court nothing which would support the claim that GM knew of a potential product defect involving this type of radiator." While the district court concluded that Daubert did not apply to Bradbury's testimony because it was not scientific testimony, it nevertheless held that Federal Rule of Evidence 702 limited the admissibility of testimony of an expert testifying in a field of technical or other specialized knowledge such as engineering. Applying Rule 702, the court refused to consider Bradbury's opinion because it was mere speculation:

The proposed testimony must go beyond mere speculation or conjecture to be of assistance to the trier of fact. In this case, while plaintiff's expert is clearly qualified as an expert on various engineering principles, his proposed opinion in this case lacks any probative value and would be of no assistance to the trier of fact. . . . [T]his court finds that [Bradbury's] proposed testimony lacks the reliability, foundation and relevance necessary for admissibility in this case [under Federal Rule of Evidence 702]. The expert has shown no knowledge of the manufacturing process, the radiator's composite makeup, nor has he conducted any meaningful testing or analysis.

On appeal, Oglesby contends that Bradbury's prior experiences in working with industrial products qualified him to give a meaningful, nonscientific opinion on whether the plastic inlet connector contained a manufacturing defect. On cross-appeal, General Motors contends that the district court erred in not subjecting Bradbury's testimony to the rigors of Daubert, which would have provided an alternative ground upon which to reject Bradbury's opinion.

## II

After the district court entered judgment in this case but before oral argument on appeal, the Supreme Court decided Kumho Tire Co. v. Carmichael, 119 S. Ct. 1167 (1999), in which it held that "Daubert's general holding -- setting forth the trial judge's general 'gatekeeping' obligation -- applies not only to testimony based on 'scientific' knowledge, but also to testimony based on 'technical' and 'other specialized' knowledge." Id. at 1171 (citing Fed. R. Evid. 702). In

Kumho Tire, the plaintiffs claimed that a manufacturing defect caused a tire to blow out, which, in turn, resulted in numerous injuries and one death. The tire was manufactured by the defendant and installed on a vehicle in 1988, five years before the plaintiffs purchased the vehicle with the tire on it. At the time of the accident, the tire had worn bald in certain areas and had undergone prior inadequate repairs to patch punctures. Plaintiffs' expert, who had a masters degree in mechanical engineering and 10 years work experience at Michelin America, Inc., as well as prior consulting experience in other tire blowout cases, gave his opinion that a manufacturing defect or design defect caused the plaintiffs' injuries. He based his opinion upon the combination of his knowledge of tire failures, a personal theory of the cause of tire failures, and his inspection of the tire at issue. His reasoning was syllogistic -- a properly manufactured tire carcass stays bound to its innertread; the tread of the tire at issue did not stay so bound; thus the tire was defectively manufactured.

The district court in Kumho excluded the expert's testimony, not because the witness lacked the requisite general qualifications, but because the court found his testimony unreliable. The court was particularly concerned about "the methodology employed by the expert in analyzing the data obtained in the visual inspection, and the scientific basis, if any, for such an analysis." Id. at 1173 (quoting the district court). In reversing the Eleventh Circuit's opinion in this case, which had held that Daubert applied only to scientific expert testimony, the Supreme Court held that the district court did not abuse its discretion in dismissing the expert's opinion as unreliable. The Court emphasized that while the plaintiffs' expert was experienced in tire failures, his methodology of relying on a visual inspection of the tire was unreliable. See id. at 1176-79.

In addition to clarifying the scope of Daubert, Kumho Tire reinforces principles established in our cases interpreting Federal Rule of Evidence 702. We have admonished that "a plaintiff may not prevail in a products liability case by relying on the opinion of an expert unsupported by any evidence such as test data or relevant literature in the field." Alevromagiros v. Hechinger Co., 993 F.2d 417, 422 (4th Cir. 1993); accord Freeman v. Case Corp., 118 F.3d 1011, 1016-17 (4th Cir. 1997).

Accordingly, a district judge, considering a proffer of expert testimony under Federal Rule of Evidence 702 -- whether based on scientific, technical, or other specialized knowledge-- must, in determining its admissibility, ensure that the evidence is "not only relevant, but reliable." Daubert, 509 U.S. at 589. A reliable expert opinion must be based on scientific, technical, or other specialized knowledge and not on belief or speculation, and inferences must be derived using scientific or other valid methods. See id. at 590, 592-93. Reliability of specialized knowledge and methods for applying it to various circumstances may be indicated by testing, peer review, evaluation of rates of error, and general acceptability. See id. at 593-94. But at bottom, the court's evaluation is always a flexible one, and the court's conclusions necessarily amount to an exercise of broad discretion guided by the overarching criteria of relevance and reliability.

When applying these principles to the case before us, we find that the particular analysis called for is similar to that in Kumho Tire. Bradbury was concededly a qualified mechanical engineer who attempted to apply general engineering principles to conclude that the plastic inlet connector in this case was defective when it left General Motors in 1988. His testimony was not sufficiently reliable, however, and did not properly draw on specialized knowledge. Rather, it depended on an imperfect syllogism constructed from unsupported suppositions.

Bradbury observed that the inlet connector was out of round and that, therefore, forces from the hose clamp as well as internal pressure from the radiator contents caused the connector to crack over time. He assumed that the manufacturer's mold was round and deduced that the connector could become out of round only during the time that the part was curing during "handling," presumably because it was a "thermo-setting" plastic. He assumed that the plastic part could not have become out of round much later because it could not be remolded by heat.

Bradbury admitted, however, that he did not know the type or composition of the plastic. He did not ask the manufacturer; he did not analyze the part; he did not test it; he did not apply any calculations.<sup>2</sup>

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<sup>2</sup> A sampling of Bradbury's deposition testimony on this subject follows:

Thus, as a matter of logic, Bradbury could not eliminate other equally plausible causes for the plastic to have come out of round or to have cracked, such as engine overheating; trauma to the inlet connector if the radiator, when removed from the car, had tipped over; or stress applied by leaning on the connector with too much weight when the plastic was hot -- all of which would be consistent with the given history of the part in this case. Bradbury assumed that the part could have gone out of round only after it left the manufacturer's mold but before it was fully set, but he had no factual basis by which to reach that conclusion.

As it turned out, the part was not manufactured out of thermo-setting plastic but out of a nylon composite which allows it to be

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Q. You haven't done any computer analysis of any of the stresses or strengths of the materials we have been discussing, have you?

A. No, I have not.

Q. You have done no testing of the radiator or parts of the radiator.

A. No. Just photographed it.

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Q. You haven't done any analysis by way of equations or calculation.

A. No.

Q. Correct?

A. That's correct. That's the reason I used the term "quantitative" earlier.

Q. I understand. You haven't done any analysis of the manufacturing process of the radiator either by way of use of the inspection mold process nor the assembly line process itself.

A. No.

Q. You have done no actual testing in which you would put the radiator under pressure and apply various external forces to it either.

A. No.

remolded. Despite the fact that Bradbury's manufacturing defect theory appears to be premised on the inability of the part to change shape after it was "set," Bradbury did not alter his opinion at all when confronted with the error in his underlying assumption as to the composition of the part.

Under generally known engineering principles, stress applied in a given amount in a particular direction would theoretically cause a plastic part to reshape itself, if hot enough, or to break. To conclude, however, that a particular stress caused a particular plastic part to reshape itself or to break, the engineer would have to know the amount of the particular stress and the stress resistance of the part at various temperatures in order to ascertain that the particular stress overcame the stress resistance of the part. Bradbury conceded, however, that he had none of the necessary data and therefore could not make any such calculations for the part in this case. He could only speculate as to a possibility which was no more likely than other available possibilities. Without more information, it would appear just as consistent with Bradbury's theory that the overheating of the engine could have caused the part to reshape, perhaps coupled with pressure by a mechanic leaning on it when hot.

The district court recognized this flaw, concluding that Bradbury's opinion lacked "any probative value" because it lacked "the reliability, foundation and relevance necessary for admissibility" under Federal Rule of Evidence 702. We cannot conclude that the district court abused its discretion in excluding Bradbury's opinion testimony. While the district court did not have the benefit of Kumho Tire, it reached the same result that an analysis under Daubert would have yielded.

### III

Without Bradbury's testimony, Oglesby failed to meet his burden of proof. He proffered no evidence demonstrating (1) that the plastic inlet connector was in essentially the same condition at the time of the incident in 1995 as it was when it left General Motors' plant in 1988 or (2) that General Motors failed to exercise due care.

Because Oglesby's injury in this case was sustained in South Carolina and removal to the district court was based on diversity of citi-

zenship, see 28 U.S.C. § 1332, we apply the substantive law of South Carolina. See Klaxon Co. v. Stentor Electric Mfg. Co., 313 U.S. 487, 496 (1941) (holding that in a diversity action the federal court applies the state court's choice of law rules); Lister v. NationsBank, 494 S.E.2d 449, 454 (S.C. Ct. App. 1998) (holding under South Carolina choice of law principles that "substantive law governing a tort action is determined by the state in which the injury occurred" (citations omitted)).

Under South Carolina law, a plaintiff in an action for strict product liability must demonstrate "(1) that he was injured by the product; (2) that the product, at the time of the accident, was in essentially the same condition as when it left the hands of the defendant; and (3) that the injury occurred because the product was in a defective condition unreasonably dangerous to the user." Allen v. Long Mfg. NC, Inc., 505 S.E.2d 354, 356 (S.C. Ct. App. 1998) (internal quotation marks, citation, and emphasis omitted); see also S.C. Code § 15-73-10 (establishing liability of seller for defective products). Similarly, to prove a breach of warranty claim, a plaintiff must demonstrate that the goods were defective "at the time the sale was completed." Doty v. Parkway Homes Co., 368 S.E.2d 670, 671 (S.C. 1988) (construing South Carolina's Uniform Commercial Code, S.C. Code § 36-2-314). And when pursuing recovery under a negligence theory, a plaintiff must prove, in addition to the three elements described in Allen, "proof that the manufacturer breached its duty to exercise reasonable care to adopt a safe design." Allen, 505 S.E.2d at 356 (internal quotation marks and citations omitted).

The Silverado truck on which Oglesby was working was purchased by Nielson in 1991 as a used truck and had approximately 156,000 miles on it at the time that Oglesby was injured. The record contains no information regarding the prior owners' repair activities or treatment of the truck. We do know that when Nielson owned the truck, he had removed the radiator on at least two occasions and had removed and repaired its hoses. During either of those repairs, the radiator's inlet connector could have been damaged as a result of the radiator's having been improperly removed, handled, or reinstalled. The inlet connector could also have been damaged from engine overheating. Without evidence demonstrating the condition of the inlet connector when it was sold by General Motors and left its custody,

Oglesby cannot carry his burden under South Carolina law for proving strict liability and breach of warranty.

Finally, Oglesby also failed to offer any evidence of negligence by General Motors. Indeed, he was unable to demonstrate that General Motors had knowledge of any problem with the plastic inlet connector. General Motors' statement that it had never received a complaint about the inlet connector in connection with any of the more than 2,500,000 trucks that had the part went unchallenged.

For the foregoing reasons, the judgment of the district court is

AFFIRMED.